

**Municipal Separate Storm Sewer System (MS4) Audit
Henrico County, Virginia
July 12 - 13, 2005**

Prepared for:
EPA Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Prepared by:
Science Applications International Corporation
11251 Roger Bacon Drive
Reston, VA 20190

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EXECUTIVE SUMMARY

Detailed findings from the Municipal Separate Storm Sewer System (MS4) audit conducted at Henrico County, Virginia on July 12 - 13, 2005 are presented in this report. The major general findings from the MS4 audit are as follows:

Update Storm Water Management Master Plan.

The County does not have a Storm Water Management Master Plan that contains all of the required MS4 program components. The Henrico County Environmental Program Manual only contains descriptions for new development and redevelopment and construction site runoff programs.

The County must prepare an updated Storm Water Management Master Plan which accurately reflects Henrico County's current storm water management practices and includes all program components.

Develop and implement a program and schedule to detect and remove, or to notify a discharger to apply for a separate Virginia DEQ permit for unauthorized non-storm water discharges or improper disposal into the MS4.

The County has not developed a scheduled ongoing field screening program to detect unauthorized non-storm water discharges or improper disposal into the MS4. In addition, the County is not always documenting and investigating potential sources of illicit discharges.

In accordance with Section I.A.1.b of Permit No. VA0088617, the County must develop a program and schedule to detect and remove, or to notify a discharger to apply for a separate Virginia DEQ permit for unauthorized non-storm water discharges or improper disposal into the MS4. In accordance with Section I.A.1.b.2 of Permit No. VA0088617, the County must implement a scheduled ongoing field screening program and prioritize its screening to focus on those locations that receive discharges from industrial and commercial sources.

Review and revise the inventory of industrial facilities.

The County's inventory of industrial facilities includes facilities that fall into the industrial categories in 40 CFR 122.26(b)(14), but does not include other facilities listed in Section I.A.1.c of Permit No. VA0088617.

In accordance with Section I.A.1.c of Permit No. VA0088617, the County revise its industrial list to include municipal landfills, hazardous waste treatment, storage and disposal facilities, industrial facilities subject to Section 313 of the Emergency Planning and Community Right to Know Act, and facilities determined by the permittee to be contributing substantial pollutant loadings. The County must also develop a program to monitor and control pollutants in storm water discharges from these sources including inspection of any new or previously unidentified facilities and monitoring.

1 INTRODUCTION

At the request of the U.S. Environmental Protection Agency (EPA) Region 3, a Municipal Separate Storm Sewer System (MS4) Audit was conducted on July 12 and 13, 2005, at Henrico County, Virginia. The audit team included Jennifer Legge, Jesse Salter, and Carol Winston of Science Applications International Corporation; Paula Estornell and Suzanne Hall of EPA Region 3; and Charley Banks, Doug Fritz, Jeff Selengut, and John McCutcheon of the Virginia Department of Conservation and Recreation (VADCR).

The Henrico County (County) was issued Permit No. VA0088617, effective from March 18, 2003 to March 18, 2008. The County is currently the single permittee holder for the MS4 permit (i.e., there are no co-permittees). Under the permit, the County is required to implement its Storm Water Management Program (SWMP). Part I.A of the permit requires the County to develop, implement, and refine the SWMP which must contain the four elements described in Section I.A.1: Runoff from Commercial and Residential Facilities, Illicit Discharge Program, Runoff from Industrial Facilities, and Runoff from Construction Sites. These program elements must be outlined in the County's Storm Water Management Master Plan. Currently, the County does not have a document titled Storm Water Management Master Plan. Instead, the County has a Part II Permit application that was submitted to VADEQ in the early 1990s and an Environmental Program Manual, which outlines the following SWMP elements:

- Runoff from Commercial and Residential Facilities.
- Runoff from Construction Sites.

The remainder of this report summarizes the findings of the MS4 audit organized by the individual components described in the County's FY2004 Annual Report (FY04 Annual Report) and is in the same order and format as the County's Virginia Pollutant Discharge Elimination System (VPDES) permit. Each program component section contains a summary of the findings associated with that program component as well as required and recommended actions.

2 FINDINGS

2.1 Maintenance of County-owned Structural Controls (Permit Section I.A.1.a.1)

Storm Sewer Utility Maintenance

The MS4 audit team interviewed Mr. Mike Bryant and Mr. Tom Cocker both with the County's Maintenance Division within the Department of Public Works. The Maintenance Division employs 140 people.

Mr. Bryant estimated that the County has 20,000 drainage inlets, two million linear feet of pipe, and 250,000 catch basins or drop inlets. Mr. Keith White, Environmental Division, Department of Public Works, noted that a County contractor is in the process of mapping the storm sewer

system. The majority of the system has been mapped and the contractor adds new storm sewer components to the map biannually based on the design plans for new development. Ditches and channels are not being mapped as a part of this process.

The County's maintenance of structural controls is primarily complaint-driven. Complaints may come into the County via many different phone lines or a web-based complaint form. If the Planning Department receives maintenance-related complaints, it forwards them to the Maintenance Division. A complaint may be handled by multiple Divisions and thus may be tracked in multiple databases.

Since August 1, 2000, the Maintenance Division has received approximately 35,000 total complaints and addresses approximately 7,000 per year. The Maintenance Division currently has approximately 1,000 unaddressed complaints. Since Hurricane Isabel in September 2003, the Maintenance Division has received more than 12,000 complaints specifically related to drainage. The Maintenance Division has two engineers and two complaint investigators, who conduct an initial assessment of all drainage-related complaints within two to three weeks of their receipt. These engineers and complaint investigators add details to the complaint and subsequent work order. Because complaints are linked to the location of the problem and subsequent corrective action, data are available to identify areas with repeated problems.

The County prioritizes maintenance complaints based first on safety concerns and second on potential damage to homes or property. Once these immediate concerns are addressed, the County then addresses complaints in the order they are received. Upon completion, work orders that are generated and implemented to address a complaint are entered into a tracking database and linked to the complaint.

The Maintenance Division does not routinely take actions to prevent flooding when storms, with the exception of Hurricanes Isabel and Gaston, are forecast. The County does routinely display road closure signs in areas that are known to flood.

The Design Division also addresses the maintenance or improvement of structural controls. After the recent hurricanes, the Design Division investigated localized flooding and, as a result, incorporated larger diameter storm sewer pipes into the design plans for the necessary rehabilitation.

The Construction Division oversees annual contractor work. In Fiscal Year 2004 (FY04), the Construction Division oversaw 36 projects on 504 linear feet of storm sewer and 28 projects that replaced 2,400 linear feet of curb and gutter.

Best Management Practices (BMPs) Inspection, Re-inspection, and Maintenance Program

The Department of Public Works' Environmental Division is responsible for the inspection of both County-owned and privately-owned BMPs. There are 53 BMPs on County property and 867 BMPs on private property, for a total of 920 BMPs, which are all mapped in the County's

Geographic Information System (GIS). The County does not have any Regional BMPs. All County-owned BMPs are located on individual sites and maintained by the Department responsible for that location.

The MS4 audit team interviewed Mr. Keith White, Mr. Scott Jackson, Mr. Matt Gwaltney, and Mr. John Newton, Environmental Division, Department of Public Works, who are involved in the inspection, re-inspection, and maintenance of BMPs. They have all conducted BMP inspections, but are not all full-time inspectors. Mr. Jackson is the primary BMP inspector for the County and conducts most of the BMP inspections prior to their acceptance. BMP inspections are documented in the County's database.

The BMP inspection program focuses on the inspections prior to the County's acceptance of the BMP. For both private and County BMPs, the Environmental Division staff inspect the BMP at rough grading, so that problems can be addressed prior to final stabilization, and final conformance. An engineer's certification that the BMP "as-built" is the same as the designed BMP is also required prior to the County's final acceptance of the BMP. The County's acceptance of the final BMP is a condition of the refund of the Erosion and Sediment Control bond for privately-owned BMPs. The County also requires BMPs to be inspected and approved for County projects before the County Department responsible releases the contractor from their obligations. The County staff stressed that they were very strict in determining whether a BMP was constructed according to design and that this has decreased the need for regular inspections after BMP approval.

Once approved, BMPs are inspected primarily as a part of the Standing Water Initiative or in response to complaints. Each summer, approximately 200 BMPs are inspected as a part of the Standing Water Initiative, which is a program to combat the reproduction of mosquitos and the spread of West Nile Virus. The BMP locations inspected for the Standing Water Initiative are chosen based on the location of large numbers of mosquitos or the location of mosquitos that test positive for West Nile Virus.

The County also responds to complaints regarding BMPs. Often complaints are received from homeowners who fail to realize that their Homeowners Association (HOA) is responsible for BMP maintenance. The County often meets with the HOA to explain that the HOA is responsible and discuss potential maintenance solutions. BMPs requiring significant maintenance are reinspected to verify that deficiencies have been addressed.

When complaints are received for County-owned facilities, the BMP inspector will inspect the site and present the findings to the Department responsible for the BMP maintenance. The Buildings and Grounds Division of the General Services Department is responsible for maintaining many small BMPs on County property. Its staff regularly monitor the BMPs while conducting day-to-day activities and maintain the BMPs as necessary. Recent major BMP maintenance projects include the dredging of Lake Hening and cleaning of a BMP on Parham Road.

Prior to site plan approval, all privately-owned BMPs must have a maintenance agreement on file with the Department of Public Works and recorded in the Circuit Court Clerk's Office. HOAs are responsible for mowing and litter control of BMPs in single-family subdivisions, but the County provides dredging as needed, which is funded partially by a one-time fee of \$100 per lot that the developer pays to the County. If privately-owned BMPs are not well-maintained, the maintenance agreement states that after providing reasonable notice, the County may assume their maintenance and assess the land owner the maintenance cost and any applicable penalties. The County has not needed to maintain any privately-owned BMPs in this manner. Stream Protection Areas (SPAs) are also subject to the same maintenance agreement.

No formal agreements are in place for the maintenance of County-owned facilities. The Departments responsible for the BMPs are also responsible for maintenance and must respond to the BMP inspectors' findings according to the direction of the County Manager.

Required actions: *None.*

Recommended actions: *The County should:*

- (1) map ditches and channels in the County's database as a part of the storm sewer system.*
- (2) move toward a maintenance program with regularly scheduled activities and ensure that adequate staff and resources are available to implement it.*
- (3) use available data of repeated problem areas to select sites for regular maintenance.*
- (4) establish a regular inspection schedule for all privately-owned BMPs.*
- (5) inspect all County-owned BMPs at least annually.*
- (6) develop an outreach program to educate the HOAs of their responsibilities regarding BMP maintenance.*

2.2 Adherence and Enforcement of the Comprehensive Plan, the Storm Water Management Master Plan, and Related Ordinances (Permit Section I.A.1.a.2)

The County's requirements related to the submittal and approval of plans required for new development and redevelopment are included in the several chapters of the County Code described below.

- *Chapter 6: Buildings* references Volumes I and II of the Virginia Uniform Statewide Building Code.
- *Chapter 10: Environment* includes erosion and sediment control and storm water management requirements. The standards contained within the Virginia Erosion and Sediment Control Regulations, the Virginia Erosion and Sediment Control Handbook, the Virginia Storm Water Management Handbook, and the Henrico County Environmental Program Manual are to be used by the applicant in the preparation and submission of an erosion and sediment control plan. The erosion and sediment control plan must include a storm water management section with the location and design of all planned storm water

control devices. It also must establish a long-term schedule for inspection and maintenance of storm water management facilities, identify all maintenance requirements and persons responsible for maintenance, and contain procedures for implementing nonstructural storm water control practices and technologies. Section 10-35(a)(11) of the County Code requires the erosion and sediment control plan to include a statement by the permittee acknowledging that a National Pollutant Discharge Elimination System permit application, if required, has been made for land disturbing activities of five acres or greater. The ordinance also specifies inspection and enforcement authority and enforcement tools.

- *Chapter 19: Subdivisions* contains the requirements for subdivision plats and construction plans.
- *Chapter 24: Zoning* contains the requirements for Plans of Development (PODs) and the requirements for development and redevelopment in the Chesapeake Bay Preservation Area (CBPA).

BMPs must be designed in accordance with the Henrico County Environmental Program Manual dated August 2001 (Program Manual). Water quality performance standards for BMPs are as follows:

- For development, the post-development nonpoint source pollution runoff load shall not exceed the pre-development load based upon average land cover conditions.
- Redevelopment of any site not currently served by water quality BMPs shall achieve at least a 10% reduction of nonpoint source pollution in runoff compared to the existing runoff load from the site.
- Post-development runoff from any site to be redeveloped that is currently served by water quality BMPs shall not exceed the existing load of nonpoint source pollution in surface runoff.

Compliance with the calculated pollutant removal requirement, as determined by the applicable water quality performance standard, is achieved in one of the following ways:

- Contributing to the Environmental Fund;
- Providing a BMP that achieves the pollutant removal requirement; or
- Complying with a state or locally implemented program of storm water discharge permits pursuant to Section 402(p) of the Federal Clean Water Act.

County staff noted that the water quality performance standards for BMPs are applied throughout the whole County, both within and outside the CBPA overlay district. Whether developers construct a BMP or contribute to the Environmental Fund, they still need to designate a SPA if applicable. Sites with greater than 16% impervious cover must also provide a forested SPA and energy dissipaters at all points of concentrated storm water discharges.

The determination of whether a developer contributes to the Environmental Fund or provides a BMP that achieves the pollutant removal requirement is based on the watershed area where the

site is located and the site's impervious area. Chapter 2 of the Program Manual explains this determination process via a series of flowcharts. Instructions for calculating of the pollutant removal requirement are contained in Chapter 3 of the Program Manual. The dollar amount developers contribute to the Environmental Fund is \$8000 per pound of pollutant required to be removed annually.

Four engineers from the Design Division review plan of development and subdivision plan submittals for compliance with Chapter 3 and two engineers from the Environmental Division review the plans for compliance with Chapter 2. One of the first steps in this review process is adding the site to the County's database and mapping its location to determine the applicable watershed area.

The Environmental Division's inspectors are also involved in the plan review process. When plans are first submitted to the County, an inspector takes the plan into the field to verify site conditions and completes the Staff Developer Review Checklist. Before the site plan is approved, the Responsible Land Developer (RLD) must attend a preconstruction meeting where the inspector reviews the erosion and sediment control requirements, including the placement of signs or tape to mark the Resource Protection Area (RPA), SPA, or wetland area. The approved plan also includes erosion and sediment control measures that must be in place before additional construction begins. These measures include perimeter controls, diversions, and sediment basins. Thus, the developer's scope of work is limited until the erosion and sediment controls are constructed properly.

The MS4 audit team reviewed the plan review files for The Manors at Sleepy Hollow and Carlton at Stoneleigh. The files contained completed versions of all plan review checklists and documentation of the developer's response to the County's comments.

Required actions: *In accordance with Section I.A.1.a.2 of Permit No. VA0088617, the County must adhere to and enforce components of the Comprehensive Plan, Storm Water Management Master Plan, and all storm water-related ordinances pertaining to development and redevelopment. To fulfill this permit condition, the County must develop or update these documents or create another document that accurately reflects the current storm water management program. In addition, the County must change Section 10-35(a)(11) of the County ordinance to require a statement by the permittee acknowledging that a National Pollutant Discharge Elimination System permit application, if required, has been made for land disturbing activities of one acre or greater.*

Recommended actions: *None.*

2.3 *Operation and Maintenance of Public Streets, Roads, and Highways (Permit Section I.A.1.a.3)*

The County is responsible for the operation and maintenance of 1,260 center line miles or 3,210 land miles of streets, roads, and highways.

Snow Management

The Maintenance Division is responsible for snow management and applies salt, sand, and/or magnesium chloride as necessary. Before the snowfall, a layer of salt treated with liquid magnesium is applied to the primary routes to keep the snow from bonding to the street. The County applies this mixture only to primary routes. Once the snow ends, the County treats secondary streets with a 50/50 mixture of salt and sand and possibly liquid magnesium. Subdivision streets are the last priority. If necessary, sand is applied to the subdivision streets, but the County usually will only plow. Some winters, including the winter of 2004/2005, no sand is applied to subdivisions. Salt and sand are stored at the Woodman Road facility.

Vegetation Control

Vegetation control is conducted by the Maintenance Division staff and by contract. The County mows half of the County roads approximately three times per year and the contractor mows the primary roadways and medians every two weeks. Mowing is also performed in response to complaints. If the overgrowth is a public hazard, it is cut immediately; otherwise, the Maintenance Division follows its regular mowing schedule. Grass clippings are left on site.

Litter control is considered to be part of vegetation control and is performed both by the Maintenance Division and by contractor. Maintenance Division and contract crews pick up litter prior to mowing. In addition, the County spends approximately \$1 million per year on a contract for a mentally-challenged citizen group to pick up litter from 40 roads. This citizen group picks up trash from approximately 100 miles of road at a frequency of six, twelve, or 24 times per year depending on the road segment. The group removes trash from a total of approximately 1,100 miles of roads each year. The Department of Public Utilities also has a "Keep Henrico Beautiful" litter control program.

Road Repair and Maintenance

The Maintenance Division conducts road repair and maintenance. County contractors perform specific projects such as street paving. Maintenance of the primary roads is prioritized based on the County's Pave Pro Manager Pavement Management Software, which analyzes various factors including roughness, rutting, cracking, and distress. The maintenance of secondary roads is primarily complaint-driven.

Traffic Control

Traffic control is a function of the Traffic Division within the Department of Public Works. It was incorporated into the storm water program because maintaining traffic flow may result in less pollution from vehicle leaks deposited on roadways in traffic congestion.

Street Sweeping

The County owns five sweepers, but usually only three sweepers are operational at any given time. The estimated total of 2,559 tons of debris removed by street sweeping reported in the FY04 Annual Report was based on an estimate of each sweeper load.

All streets treated with sand are swept within 90 days after the end of winter. The sweeper crews use the same maps that are used for snow removal.

The majority of street sweeping is performed in the spring. After the initial round of street sweeping in the spring, the remaining street sweeping program is complaint-driven. Sweeping is often performed in conjunction with paving. Usually streets must be swept before paving, and some need to be swept after paving if they are chipped and sealed. Tar and gravel swept after paving are deposited at the Woodman Road site for reuse. The other collected debris is disposed in an approved landfill.

The County has a leaf pick-up program from November through April. For a \$30 fee, homeowners can rake their leaves into ditches or the curb to be picked up. Leaves are taken to three entities: an approved farmer who can accept up to 1,000 tons, a contractor who recycles the leaves for mulch, and the City of Richmond which disposes of the leaves at their leaf site in the City landfill.

Required actions: *None.*

Recommended actions: *The County should develop a regularly scheduled street, road, and highway maintenance program that occurs more frequently than once per year or as complaints are received.*

2.4 Flood Management Projects (Permit Section I.A.1.a.4)

In the late 1970s and early 1980s, the County conducted a Comprehensive Drainage Study to delineate new floodplains. The County also established a 50/10 detention requirement for the developed areas of the County. Storm water detention facilities are required to be provided as a part of commercial development in those watersheds where downstream flooding problems are known to occur or if existing homes are located within the 50-year flood plain. The design of these detention facilities shall be such that the post-development peak flow from the site for a 50-year storm event does not exceed the pre-development peak flow rate for a 10-year storm event.

The County's Capital Improvement Project Plan contains \$36.4 million for drainage-related capital improvement projects in the for 2004 through 2009. The County has solicited proposals for two projects, but none have been constructed. The County aims to address one or two projects per year and spend approximately \$0.5 million per year; however, lack of funding is an issue.

All proposed storm sewer projects are reviewed by the Design Division in the Department of Public Works. The County described its process for reviewing flood management projects in the FY04 Annual Report.

The County also partners with private efforts to ensure that existing flood management projects can be maintained. A dam was breached after Hurricane Gaston in a lake on the west end of the

County. Private developers are reconstructing the lake, but the Design Division is requiring that the pipe diameter be adequate and the sediment forebay be accessible from the road to facilitate maintenance by the County. The County often helps developers and homeowners secure the necessary permits for drainage improvement projects on private property.

Required actions: *None.*

Recommended actions: *The County should acquire funds to support drainage-related capital improvement projects.*

2.5 Pesticides, Herbicides, and Fertilizers (PHFs) (Permit Section I.A.1.a.5)

The County has a centralized list of certified pesticide applicators, who are trained annually. The number of certified applicators in the list provided did not match the numbers presented by County staff during the interviews.

Maintenance Division

The Maintenance Division has five pesticide applicators, who were certified to assist with mosquito control, but rarely apply pesticides. The Maintenance Division has a contract for the application of herbicides such as Roundup in locations that cannot be mowed (i.e., in the curb and gutter, along guardrails, and in cracks in the pavement). The contract requires the company to follow applicable rules and regulations. The contract company invoices the County for time and materials, so the County is aware of how much herbicide is applied. Most application is done on a routine basis, but sometimes is complaint-driven. The same contractor applies pelletized lime and slow release fertilizer once per year. The County uses a program called Weather Century to monitor the weather forecast, and the contractor is instructed not to apply herbicides or fertilizers when a heavy rain is forecast.

Environmental Division

The Environmental Division has five pesticide applicators, four of whom are certified as Category 8 applicators. In addition, two to four registered technicians are hired each summer. Most pesticide application is done for mosquito control through the Standing Water Initiative and occurs April through October. Applicators visit some sites monthly or every two weeks and goes to other sites in response to complaints. All applications are documented in the County's database and mapped in the GIS. Prior to application, the applicators survey the areas for mosquito larvae. The Environmental Division only applies larvaecide and uses primarily *Bacillus thuringiensis* var. *israelensis* (Bti) and *Bacillus sphaericus* (Bs), and occasionally AgNique. In addition to applying pesticides, the Environmental Division contacts the Maintenance Division for reduction of standing water and participates in a fish-stocking program with the Virginia Department of Game and Inland Fisheries.

The Environmental Division stores its pesticides at a shed at the Woodman Road facility. The employees also carry approximately one shaker full of pesticide in their vehicles. Mr. Randy Buchanan, Manager of the Standing Water Initiative, is responsible for purchasing pesticides and

was unavailable for interview by the MS4 audit team. The Environmental Division supplies the Departments of General Services and Public Utilities with larvaecide. County schools usually have their own supply, but they may also receive larvaecide from the Environmental Division. The Environmental Division does not store more than 1,000 pounds of larvaecide at any given time.

Parks and Recreation Department

The Parks and Recreation Department has two certified pesticide applicators and one registered technician. It also has several employees who are certified applicators for mosquito control. Mr. Vince Henderson is responsible for maintenance, including pesticide application, at all irrigated sites in the County which is a total of 122 acres. The Department does not contract out any application.

Mr. Henderson maintains a Pesticide Book that has Standard Operating Procedures (SOPs) for pesticide application as well as records of pesticide application dates and locations. The Department uses the following herbicides: Roundup, Oxydiazone, Dimension, Manage, Monument, Drive, and Revolver. The applicators in the Parks and Recreation Department also routinely apply pesticides and respond to requests for mosquito control.

For the past three years, the Parks and Recreation Department has used an organic approach to its fertilizer application. It applies 2.5 to 3.5 pounds of nitrogen annually. If the Department is renovating a field or constructing a new field, it could apply up to four pounds. In the fall, the Department applies 1.5 pounds of pot ash per 1,000 square feet. In the last two years, the County has not used insecticides on any of its fields. The soils are tested annually. Approximately 75% of the fields are fertilized every year.

The Parks and Recreation Department stores its PHFs at its main shop on Woodman Road. Mr. Henderson is responsible for purchasing and only orders on an as needed basis.

Mr. Frank Flannagan is responsible for the County Golf Course, which has three certified pesticide applicators, one of whom is certified Category 8. Pre-emergent herbicides are used to control goose and crab grasses and blue grasses. Barricade is applied most often. The Golf Course uses one Restricted Use Pesticide named Talstar. The Golf Course uses integrated pest management and has an employee's handbook that contains SOPs for pesticides handling, application, and storage and disposal. The PHFs are stored on site at the Golf Course. Mr. Flannagan is responsible for purchasing and orders an amount for approximately 45 days of application.

Mr. Flannagan contracts a consultant to analyze the soil and fertilizes based on the results. Four pounds of nitrogen are applied annually to the fairways, tees, and rough; six pounds of nitrogen are applied annually to the greens. A contractor applies lime in the fall or early winter based on soil sample results.

Public Education

The County developed flyers for its Standing Water Initiative, which were approved by the Public Relations Division, and also aired two-minute public service announcements regarding reducing mosquito breeding sites. The County also has information on its web site and distributes information in water bills. The Standing Water Initiative has an adult mosquito surveillance program, and residents are notified within a one-half mile radius of any locations where a mosquito tests positive for the West Nile Virus.

The County Extension Office in cooperation with Virginia Polytechnic Institute and State University provides to the public brochures, pamphlets, and books regarding responsible use of PHFs and conducts outreach activities at fairs and festivals in the County. The County also has a Smart Lawns Program where soil sample results are used to help residents choose which products to apply.

Required actions: *None.*

Recommended actions: *The County should:*

- (1) reconcile its list of certified pesticide applicators with the number of certified applicators provided to the MS4 audit team during the interviews.*
- (2) implement nutrient management plans to control nutrient applications in such areas as the golf course, athletic fields, etc.*

2.6 Illicit Discharge Detection and Removal (Permit Section I.A.1.b)

The County has not developed a program to detect unauthorized non-storm water discharges or improper disposal into the MS4. The County does not have an ongoing, scheduled field screening program (see Section 2.8 - *Illicit Discharge Detection and Removal - Field Screening Program*). The County also is not always documenting and investigating potential sources of illicit discharges (see Section 2.9 - *Identifying Sources of Illicit Discharges*).

Required actions: *In accordance with Section I.A.1.b of Permit No. VA0088617, the County must develop a program and schedule to detect and remove, or to notify a discharger to apply for a separate Virginia DEQ permit for unauthorized non-storm water discharges or improper disposal into the MS4. (See also Required actions in Sections 2.8 and 2.9.)*

2.7 Illicit Discharge Detection and Removal - Storm Sewer System Discharge Ordinance (Permit Section I.A.1.b.1)

Section 10-215 of Article VII. Stormwater Management in the County Code defines an illicit discharge as any discharge to a storm sewer that is not composed entirely of storm water, except discharges pursuant to a VPDES permit or discharges resulting from firefighting activities. This definition does not include the discharges listed in Section 10-218(b) which include water line flushing, landscape irrigation, diverting stream flows or raising groundwater, infiltration of uncontaminated groundwater, pumping of uncontaminated groundwater from potable water

sources, foundations drains, irrigation waters, springs or water from crawl spaces or footing drains, lawn watering, individual car washing on residential properties and street washing.

Enforcement authority for illicit discharges is found in Section 10-216, which indicates that violations are considered a misdemeanor and violators will be subject to a fine not exceeding \$1,000 or up to 30 days imprisonment for each violation or both. In addition the violator is liable for all costs of testing, containment, cleanup, abatement, and removal and disposal of any substance unlawfully discharged into the storm sewer system.

Required actions: *None.*

Recommended actions: *None.*

2.8 Illicit Discharge Detection and Removal - Field Screening Program (Permit Section I.A.1.b.2)

County staff indicated that the field screening program includes the following activities:

- (1) Observations by the Drainage Maintenance crews or Environmental Division staff responsible for the Standing Water Initiative as they perform their normal maintenance tasks (see discussion of Standing Water Initiative in Section 2.6 of this report). These staff carry chlorine kits for testing any discharges observed.
- (2) Response to complaints received from citizens of illicit discharges.
- (3) Stream Assessments, which according to County staff were conducted in late 2000. Teams of County staff and consultants walked more than 400 miles of streams, collected data, and identified outfalls with dry weather discharges. The County conducted investigations to identify the sources of the dry weather discharges. The data from this project are being used to prioritize corrective actions (e.g., restoring a stream with significant erosion). The County provided the MS4 audit team with a document titled Preliminary Assessment of Restoration Potential for Stream Reaches in Henrico County, dated April 2005, which included stream data collected as part of the Watershed project, but did not include any dry weather discharge data.

The above activities do not constitute an ongoing, scheduled field screening program. The activities do not place priority on screening in parts of the MS4 that receive discharges from commercial or industrial facilities.

The County has no written procedures for the screening conducted by the Maintenance and Environmental Division staff (e.g., what criteria are used to determine when a sample would be sent to the laboratory or the parameters for which testing would be performed).

As part of the Stream Assessments, the County collected information on outfalls located on some stream segments. These data were entered into the County GIS. Currently the County has no

program to perform a complete outfall inventory or verify the outfall information in its GIS. The County is considering a pilot study to collect and verify outfall location data in a selected watershed. The study would be funded by the Environmental Fund.

Required actions: *In accordance with Section I.A.1.b.2 of Permit No. VA0088617, the County is required to implement field screening procedures for identifying unauthorized non-storm water discharges and improper disposal into the storm sewer system. The County is also required to place priority for its screening procedures on segments of the storm sewer system which receive discharge from industrial and commercial sources. The County must, therefore, implement a scheduled, ongoing field screening program and prioritize its screening to focus on those locations that receive discharges from industrial and commercial sources.*

Recommended actions: *The County should:*

- (1) develop written SOPs for field screening procedures, including conducting dry weather inspections of the storm sewer system and other activities used to identify non-storm water discharges. The SOPs should specify criteria which the County will use to identify when further action is needed to correct any problems that are found.*
- (2) consider implementing a pilot project to conduct an outfall inventory and verify the locations of existing outfalls using monies from the Environmental Fund.*

2.9 Illicit Discharge Detection and Removal - Identifying Sources of Illicit Discharges (Permit Section I.A.1.b.3)

Mr. Mal Lafoon, Environmental Inspector in the Environmental Division, is primarily responsible for conducting on-site investigations of potential sources of illicit discharges. When Mr. Lafoon is notified of a potential illicit discharge, he uses the County GIS map to find the outfall and identify potential sources. He goes to the site and collects and sends a water sample to the Wastewater Treatment Plant Laboratory. The County's investigation may involve activities such as dye testing pipes or televising storm sewer lines. If the source of the discharge can be identified, Mr. Lafoon will direct the responsible party to address the problem and clean up the site.

The County has no written SOPs for conducting an investigation of the source of an illicit discharge. The County has a database for tracking illicit discharges which is maintained by Mr. Lafoon. In addition, information on illicit discharges is included in the GIS database and map.

The County established an Environmental Compliance Task Force approximately two years ago, which includes members from various County organizations such as the Department of Public Works, the Department of Public Utilities, the Division of Fire, and the Health Department. One goal of the Task Force is to communicate and coordinate activities across these agencies in addressing environmental problems such as illicit discharges to the MS4. The Task Force has developed a web site regarding all environmental issues and developed a database for tracking environmental incidents. The database is maintained by the Task Force members. The Division

of Fire provided the MS4 audit team with summarized information from this database. The Task Force has not been formalized by the County; thus its activities can be stopped at any time.

As part of its Watershed Project, the County identified more than 70 dump sites along the stream segments under the project. To address the dump sites, a letter was first sent to property owners for the area where the dump sites were located. Most property owners cleaned up the dump sites voluntarily. The County re-inspected these sites to verify that they had been cleaned up. The Environmental Division worked with the Department of Community Revitalization to clean up almost all the remaining sites using participants in the Community Corrections Program. The County has one or two cases which have not been addressed because the sites require special actions (e.g., the dump sites contains thousands of tires that require a major cleanup effort).

During the trip to the landfill site, the MS4 audit team observed a liquid being discharged to the road. Upon relaying this observation to the Henrico County staff, the County staff noted that this was a common occurrence and made no notes regarding investigation or follow-up actions of this occurrence which appeared to be an illegal discharge.

Required actions: *In accordance with Section I.A.1.b.3 of Permit No. VA0088617, the County must conduct on-site investigations of all potential sources of unauthorized non-storm water discharges and act as expeditiously as possible to require a discharger to eliminate unauthorized non-storm water discharges.*

Recommended actions: *The County should:*

- (1) develop written procedures for its identification and investigation of illicit discharges.*
- (2) formalize the Environmental Compliance Task Force to ensure continued communication and coordination in addressing environmental problems, particularly illicit discharges to the MS4.*

2.10 Illicit Discharge Detection and Removal - Hazardous Materials Emergency Response Plan (Permit Section I.A.1.b.4)

Captain Butch Jones, Deputy Fire Marshal, described the County's spill response program. The County uses the following documents to respond to spills:

- The Flowsheet for Spill Response contains the agencies to be contacted in the event of a spill as well as contact names and phone numbers.
- The Response Procedures for Illegal Dumping or Spills are used by the Environmental Division staff to address situations when the Environmental Division is contacted by the Division of Fire to respond to a spill. When Environmental Division staff respond to a spill, they take a copy of the Comprehensive Drainage Study (CDS) sheet to assist in determining whether the pollutant has entered a storm drain. In an email sent on August 8, 2005, Mr. Newton noted that the CDS is the mapping system used prior to the GIS mapping system.

- Title EO-08 Spills Involving Petroleum Products (effective June 1, 2003) whose purpose is to assist the Division of Fire in handling spills of fuel oil, diesel fuel, gasoline, and other similar petroleum products.
- Title FC-1-10 Hazardous Materials Emergency Incidents (effective December 4, 2003) outlines the procedures for responding to hazardous materials incidents.
- Hazard Specific Appendix I: Hazardous Substances, Henrico County Emergency Response Plan describes the roles and responsibilities of various agencies. For example, the Department of Public Works is responsible for developing and maintaining SOPs for preventing toxic materials run-off from entering the sewer/storm drainage system.

Captain Jones noted that the Division of Fire has three teams (43 employees) with spill response duties. Incidents are documented using an Incident Report Form. The Division of Fire does not clean up the sites; they only perform mitigation activities. When the responsible party for a spill cannot be identified, the County uses a private contractor to clean up the spill. Costs to the County in responding to a spill are typically recovered from the responsible party. Letters of violation are sent to responsible parties for spills that entered the storm drain system.

Required actions: None.

Recommended actions: The County should update *The Response Procedures for Illegal Dumping or Spills* to indicate that maps from the County's GIS system should be used rather than the CDS sheet if that is the current practice.

2.11 Illicit Discharge Detection and Removal - Public Reporting of Illicit Discharges (Permit Section I.A.1.b.5)

The County does not have a designated phone number or hotline for public reporting of illicit discharges. County staff indicated that citizens can find the phone numbers for the Environmental Division in the phone book. The County also provided a brochure titled *The Stormwater Ordinance* which contains a section titled "How Do I Report A Violation of the Stormwater Ordinance?" and the phone number for the Environmental Division. These brochures were available at the lobby of the West End Administrative Annex. No contact information could be found on the Henrico County web site regarding reporting of illicit discharges. County staff indicated that any calls relating to illicit discharges are directed to Mr. Lafoon for follow-up.

Required actions: None.

Recommended actions: The County should:

- (1) establishing a specific phone number for the reporting of illicit discharges.
- (2) including information about public reporting of illicit discharges in its web site.

2.12 Illicit Discharge Detection and Removal - Toxic Household Waste Disposal (Permit Section I.A.1.b.6)

The Department of Public Utilities posts recycling information on its web site. The web site has a link to an interactive map that designates drop-off recycling locations, including two locations, Springfield Road Public Use Area and Charles City Road Public Use Area, that accept used oil.

The County Division of Fire has some EPA brochures regarding toxic household waste disposal that they distribute to the public upon request.

Required actions: *None.*

Recommended actions: *None.*

2.13 Illicit Discharge Detection and Removal - Sanitary Sewer Infiltration Management (Permit Section I.A.1.b.7)

Mr. Tom Alford, Chief of Operations, Water and Sewer Division, Department of Public Utilities, discussed the County's program for managing sanitary sewer infiltration. The County does not currently have a proactive program to look for interconnections. The County has been routinely televising the sanitary system and occasionally the storm sewer system using closed circuit television. Maintenance staff in the Operations Division, Department of Public Utilities, observe the sewer for interconnections or leakage while conducting their normal tasks. Generally the County has not found physical connections between the sanitary and storm sewers. Mr. Alford described one case of leakage between sanitary and storm sewer pipes because of age and deterioration problems.

The summary of illicit discharges from the Environmental Division database showed that more than 220 out of approximately 270 illicit discharges for the period of 2001 through 2005 were sanitary sewer overflows (SSOs). The County provided to the MS4 audit team an example letter of SSO notification and an Unauthorized Discharge & Overflow Report (Overflow Report) the County submitted to the Virginia Department of Environmental Quality (VADEQ). Mr. Alford noted that Overflow Reports would specifically note whether the SSO reached a storm drain if this information was known by the County. If the County could not confirm whether the SSO reached a storm sewer, no information would be included in the report.

In 1995, the County conducted a wet weather flow study and used recommendations from that study to develop its Capital Improvement Program (CIP) for sewer rehabilitation. In 1997, the County prepared a facilities plan to identify problems in the sanitary sewer system (e.g., pumps that needed to be upgraded). The County is currently updating the facilities plan and wet weather flow plan to reprioritize CIP projects.

The County has \$11 million to fund sanitary sewer rehabilitation and capital improvement projects. The County has been installing tanks for additional storage at pump stations.

The County televises all new lines so any problems can be identified. In addition, the County is testing lines as part of its acceptance process. The County televises and conducts manhole inspections in areas where problems have been found. This information is used for preparing the CIP. In the fall of 2004, the County started a program of visually inspecting sanitary sewers along streams. The County may implement a ten-year cycle for inspecting and cleaning the entire sanitary system.

Required actions: None.

Recommended actions: The County should implement the improved storm sewer maintenance program described during the MS4 audit, which involves a ten-year cycle for inspecting and cleaning the entire sanitary system and should consider including inspection of the storm sewer system to more accurately detect infiltration.

2.14 Industrial Facility Inspections and Monitoring (Permit Section I.A.1.c)

The County initially prepared its list of industrial facilities using sources such as the database of industrial users from the County industrial pretreatment program, the Division of Fire list of businesses, and phone books [using Standard Industrial Classification (SIC) codes]. The County also contacted VADEQ to obtain a list of VADEQ-permitted facilities. County staff believed that the industries required to be included in this program are the industrial categories listed in 40 CFR 122.26(b)(14); thus, the County's list is based exclusively on these industrial categories. Section I.A.1.c of the permit indicates that industrial facilities subject to Section 313 of the Emergency Planning and Community Right to Know Act (EPCRA) are included in the program. Some industrial facilities, which are subject to Section 313 of EPCRA to include industrial categories classified as SIC 5469 (chemical and allied products wholesale) and SIC 7389 (solvent recovery services), were not included in the County's list because they are not in the industrial categories listed in 40 CFR 122.26(b)(14).

The industrial facility list is periodically updated, with the most recent update about six months ago, using the VADEQ list of all permitted industries. Mr. Lafoon indicated that the County obtains the list upon request from VADEQ about every two years. The County's current list has 21 industrial facilities. All 21 facilities have VADEQ permit numbers except one facility that is listed as closed and three facilities that are listed as exempt because they have completed no exposure certifications.

All industrial facilities on the County list, except for those which have completed the no exposure certification, are inspected annually. The County does not have a prioritization plan for the industrial facilities, but will place priority on those facilities which had past problems.

Mr. Lafoon is currently the only County industrial inspector, but he is in the process of training another County staff person. Mr. Lafoon described his typical inspection procedures which include: reviewing the facility Storm Water Pollution Prevention Plan (SWPPP); reviewing the facility site map (contained within the SWPPP); reviewing any required reports and records of

on-site spills; evaluating whether the facility Pollution Prevention team and training are up-to-date; and checking the facility's monitoring data.

Mr. Lafoon documents his inspection findings on an industrial facility checklist which was provided to the MS4 audit team. The checklist is one-page and does not contain questions/areas for documenting many of the items that Mr. Lafoon indicated he reviewed as part of the inspection (e.g., review of the site map, Pollution Prevention Team, and training records).

The County has taken enforcement actions at industrial facilities using its authority under the Stormwater Management Ordinance (see discussion of enforcement authority in *Section 2.6 Illicit Discharge Detection and Removal - Storm Sewer System Discharge Ordinance*).

The MS4 audit team reviewed the industrial facility inspection file for the Smurfit Stone Container Corporation. It was found that the inspector's recommendations to contain sediment and eroding bank as well as to clean a trash container were included in the majority of the inspection reports covering the period of 1995 through 2002. The file did not include documentation of whether the facility addressed the problems or whether the County took any further follow-up actions (e.g., issuing a Notice to Comply).

The MS4 audit team conducted a site visit to the Springfield Road landfill. While detailed observations associated with this site visit are presented in Appendix A, the findings include:

- Part III.A.1. of the General Permit requires that facilities covered by the 1999 General Permit revise their SWPPP by August 30, 2004, but the Springfield Road landfill SWPPP was not revised until July 2005.
- Sediment control issues were identified at the site.
- Disturbed areas without temporary or permanent stabilization are contributing sediment to the ditch and basin system.
- Handling of wastes and potentially contaminated storm water at the drop-off center are of concern.
- The implementation of planned changes to the self-inspection and maintenance program and associated recordkeeping, such as the use of the maintenance form in Appendix K of the SWPPP, will improve the landfill's storm water program.
- An annual compliance evaluation for 2004 and a quarterly visual inspection for the third quarter of 2004 were not available.
- Landfill staff do not have adequate training to conduct self-inspections (particularly as related to erosion and sediment control).

The MS4 audit team also conducted a site visit to the County fleet maintenance facility. The findings included:

- The interior of the facility was extremely well-maintained and clean. Up-to-date practices were in place and being utilized.
- The interior floor drains went to an oil-water separator and surrounded the work areas.
- There were significant amounts of petroleum staining and soil on the outside parking areas where vehicles that need repair are parked. A main storm drain with inlets runs

through the parking lot and showed evidence that implementation of pollution prevention/good housekeeping measures was needed.

- It appeared that an employee washed either his hands or a piece of machinery outside the building and dumped wash water directly onto the ground for direct discharge to the MS4.
- Responsibility for the facility was divided among several supervisors. It appeared that each supervisor was not aware of the activities outside of the area for which that supervisor was responsible (e.g., the salt storage next to the vehicle maintenance facility).
- Routine storm water inspections are not being conducted.

The MS4 audit team observed Mr. Lafoon conduct a thorough and comprehensive industrial inspection at Infineon Technologies; however, the inspection report did not provide a corrective action deadline date for the necessary housekeeping. Detailed observations associated with this site visit are presented in Appendix B.

Required actions: In accordance with Section I.A.1.c of Permit No. VA0088617, the County must develop an industrial list that includes municipal landfills; hazardous waste treatment, storage and disposal facilities; industrial facilities subject to Section 313 of EPCRA; and facilities determined by the permittee to be contributing substantial pollutant loadings. The County must also develop a program to monitor and control pollutants in storm water discharges from these sources including inspection of any new or previously unidentified facilities and monitoring.

Recommended actions: The County should:

- (1) revise the industrial facility checklist to include more specific questions/areas related to review of the SWPPP, site plan, required records, etc.
- (2) implement procedures to follow-up at industrial facilities where compliance issues have been identified during an inspection and document whether the issues have been resolved.
- (3) inspect industrial facilities with no exposure certifications on a scheduled basis (e.g., every two years) to verify their no exposure status.
- (4) establish a regular inspection program at the municipal landfill. The County should train landfill staff to conduct storm water inspections or use qualified Environmental Division inspectors.
- (5) monitor the landfill's storm water discharges to the MS4.
- (6) ensure that all inspection report forms are filled out completely.
- (7) establish a regular storm water inspection program at the vehicle maintenance shops.
- (8) implement pollution prevention/good housekeeping practices at the vehicle maintenance shop to prevent petroleum leaks and spills in the outside parking lot and wash water not being discharged directly onto the ground outside the building.
- (9) improve coordination and communication among the supervisors for all activities and areas at the County vehicle maintenance facility and surrounding areas.

2.15 Construction Site Management (Permit Section I.A.1.d)

The County requires that construction sites use structural and non-structural BMPs from the Virginia Sediment and Erosion Control Handbook.

Currently the County has ten State-certified erosion and sediment control inspectors. Mr. Mike Hackett supervises a group of five erosion and sediment control inspectors who conduct the majority of the erosion and sediment control inspections in the County.

The County attempts to conduct inspections once every two weeks or after a rainfall event, but is not always able to inspect sites at that frequency. The County is currently developing an Alternate Inspection Scheme that would outline a method to prioritize erosion and sediment control inspections based on proximity to streams, acreage disturbed, and other factors related to the impact of construction runoff on water quality. As of July 13, 2005, the Alternate Inspection Scheme had not been submitted.

The County inspectors use the Erosion and Sediment Control Inspection Report form to document inspection findings. A copy of the completed inspection report is provided to the land disturber or builder immediately for corrective action. The inspection report includes a required corrective action deadline date. All sites with violations are reinspected. If violations are found during the reinspection, the County inspector issues a Notice to Comply (NTC). If the violations continue, the County will issue a Stop Work Order, which needs to be signed by the Director or Assistant Director of the Department of Public Works. The ordinance indicates that a Stop Work Order may be issued only after either the owner or permittee has failed to comply with a NTC unless the alleged noncompliance is causing or is in imminent danger of causing harmful erosion or sediment deposition in waters within the watersheds of the state. Stop Work Orders may be issued without a subsequent NTC when a person engages in land disturbing activity without an approved plan or agreement in lieu of a plan. The County most frequently issues Stop Work Orders as a result of land disturbance without a plan, not violations of a NTC. The County's enforcement authority is found in Sections 10-13 and 10-14 of the County's Environment Ordinance. The County does not have written enforcement procedures.

On March 1, 2003, the Environmental Section expanded VADCR's Responsible Land Disturber (RLD) Program to require the RLD to conduct site inspections and make the self-inspection reports available to the inspector. The RLD inspection requirement is enforced in the same manner as any other erosion and sediment control requirement. The County has issued Stop Work Orders in cases when the RLD formally resigns and the owner or builder does not designate a replacement RLD.

The County inspectors recently began documenting all inspections in the County's database as a result of feedback from VADCR. If no deficiencies are noted during the inspection, the inspection is documented in the database only. If deficiencies were found, a copy of the inspection report is kept in the file.

The County is providing VADCR a monthly summary of sites with approved plans. A copy of the May 25, 2005, submission to VADCR was provided to the MS4 audit team.

VADCR conducted a program review of Henrico County's Erosion and Sediment Control program from December 2002 through April 2003. The program review indicated that the County's program was inconsistent with state law and regulations. The County's FY03 and FY04 Annual Reports did not include the County's efforts to achieve VADCR's approval of its Erosion and Sediment Control Program.

Findings from the review of the County inspection and erosion and sediment control plan files were as follows:

- A required portion of the erosion and sediment control plan requests a signed acknowledgment that a VPDES construction storm water permit has been obtained if required.
- The inspection file for the Raleigh development demonstrated a case of appropriate escalation of enforcement. The County inspection on 10/11/04 found deficiencies that led to a Notice to Comply issued on 10/12/04. The deficiencies were to be corrected within 48 hours. A 10/13/04 inspection found that the deficiencies were not corrected. The County issued a Stop Work Order on 10/15/04, halting all land disturbing activity until the corrective actions were complete. A repeat inspection on 11/9/04 found the corrective actions were complete, and the Stop Work Order was lifted.
- The County requires developers to provide copies of self-inspection reports periodically. Most self-inspection reports for Raleigh (from October 2004 to June 2005) note that the soil stockpile was not protected by silt fence. This observation was not found in County inspection reports. Based on the MS4 audit team's observation of the County inspector at this site, the inspector is requiring other controls around the stockpile, such as diversion ditches, but not silt fence (see Appendix B).
- The County inspector for the Carlton at Stoneleigh development noted that denuded areas needed to be seeded and mulched on three successive reports (4/6/05, 5/19/05, and 6/29/05), but no Notice to Comply or other action was taken. The MS4 audit team's site visit to this development found that inactive areas had been seeded or mulched, although erosion patterns indicated that some mulching may be ineffective (see Appendix B).
- The MS4 audit team also reviewed the files for the Three Notch Place and Grayson Hill developments and had no findings.

The MS4 audit team observed the County inspector conduct inspections at two residential construction sites: Raleigh and Carlton at Stoneleigh. Findings from the site visit to Raleigh were as follows:

- The inspection report provided to the MS4 audit team was missing information (e.g., request for seeding at the outfall of Sediment Trap 3 and corrective action deadline).
- Sediment in the stream indicated that the controls on site were not sufficient to prevent sediment-bearing runoff.
- Controls noted on the erosion and sediment control plan, such as inlet protection, are not being required by the County.

- The inspection report did not indicate that some controls did not appear to meet the requirements of the Virginia Erosion and Sediment Control Handbook.

Summaries of the site visits to the Raleigh and Carlton at Stoneleigh construction sites are included in Appendix C.

Education and Training for Construction Site Operators

The County conducted a Site Contractor Workshop on November 7, 2002, which was a few months before the new RLD requirements were finalized. Agenda topics included the RLD Program, Erosion and Sediment Sequence, Proper Installation and Maintenance of Frequently Used Erosion and Sediment Control Measures, Sediment Basins, BMP Construction, Wetland Rules, Litter and Non Point Source Pollution Control, and West Nile.

Required actions: *In its Annual Report, the County must document all efforts to achieve VADCR's approval of its Erosion and Sediment Control Program.*

Recommended actions: *The County should:*

- (1) increase the number of certified erosion and sediment control inspectors to achieve greater inspection coverage of construction sites in the County.*
- (2) develop written enforcement procedures.*
- (3) document all deficiencies on the inspection reports and ensure that all inspection report forms are filled out completely.*

2.16 Annual Report (Permit Section I.A.3)

Section I.A.3 of Permit No. VA0088617 requires the County to submit an Annual Report which includes all the information and data listed in this section of the permit. The MS4 audit team compared the data which are required to be included in the Annual Report with the FY04 Annual Report. The FY04 Annual Report did not include the following required items:

- The number and nature of unauthorized non-storm water discharges or improper disposal practices eliminated under the program by conducting on-site investigations (specified in Section I.A.3.a.4).
- A summary of any controls established for the facilities identified and inspected under Part I.A.1.c.(1) and the implementation schedule established (specified in Section I.A.3.a.5).
- Results of any monitoring performed in accordance with Part I.A.1.c.(2) of the permit (specified in Section I.A.3.a.6).
- The inspection and maintenance activities for BMPs in the Chesapeake Bay watershed (specified in Section I.A.3.i.5).

Required Actions: *In accordance with Section I.A.3 of Permit No. VA0088617, the County must include all of the items listed in the above paragraph in its Annual Report.*

2.17 Stream Assessment/Watershed Management Program Status (Permit Section I.C)

The Watershed Management Program was initiated because the requirements of the CBPA were resulting in small BMPs on every site that did not significantly enhance water quality. The County determined that 60% of new BMPs addressed 90% of the pollutant removal requirement; while the remaining 40% only minimally reduced pollutant loads. The County wanted to use those resources for other projects that would provide greater benefit to the watershed.

The County conducted stream assessments on 440 miles of stream that provided drainage for 100 acres or more. The County walked the streams for approximately five weeks beginning in late October 2000. The employees documented all pipes entering the stream, debris issues, dump sites, and obstructions. The County hired a consultant to digitize and incorporate the findings into the County's database.

The County assessed and classified 67 sub-watersheds, as: preservation areas, which have streams in good condition; enhancement areas, which have streams that are starting to deteriorate; or restoration areas, which have streams that are in poor condition. Urban management areas were also delineated along highly developed corridors, such as Broad Street. The requirements for new development projects, including whether they need to provide a BMP or contribute to the Environmental Fund, depend on the classification of the watershed area in which they are located.

The stream assessment identified 900 stream reaches. The County developed a tiered system to evaluate and prioritize stream restoration projects in these reaches. This system resulted in the identification of 48 priority reaches. The County is developing a document that provides details regarding these reaches, including the landowner(s), availability of access for construction, and existing utility conflicts. The Nature Conservancy is pursuing trust funds to restore some streams. In addition, the document describing the priority streams is available to companies that may have permit requirements to restore a certain length of stream.

A portion of the \$1.7 million that has been collected in the Environmental Fund has been spent on the design of two stream restoration projects and other small projects (e.g., an end-of-pipe retrofit and stream cleanup efforts). The County does not plan to design a third stream restoration project until at least one of the two currently designed projects is under construction. The stream restoration projects are approximately 1,400 feet in length each and have been delayed for various reasons.

The County was initially concerned that the Watershed Management Program would allow streams to degrade until the larger projects funded through the Environmental Fund were completed. However, the County believes that the SPA buffer and energy dissipater requirements help to reduce stream degradation. Additionally, the County has 50/10 quantity control requirements that developers must follow if applicable. Thus, some developers may create a detention basin for water quantity control and pay into the Environmental Fund.

The County's MS4 permit requires the County to conduct four or five bioassessments each year. The County plans to conduct the bioassessments in the fall of 2005. The bioassessment sites have not been chosen, but will likely be located on the stream reaches where the stream restoration projects are underway and on the stream reaches where bioassessments were performed in previous years to help provide more detailed baseline conditions.

2.18 County Resources/Budget

As indicated in the FY04 Annual Report, the approved operating budget for FY2004 was approximately \$2.5 million and the estimated expenditures for FY2005 are approximately \$2.6 million. The following elements of the MS4 program are not accounted for in the budget in the Annual Report: Standing Water Initiative, spill response by the Division of Fire, and Capital Improvement Projects. Mr. Perry was unsure of where the cost of the bioassessments was accounted for in the budget table.

Mr. Perry believes that the County could use additional resources for illicit discharge efforts and industrial inspections. In addition, many drainage-related Capital Improvement Projects are currently on hold due to lack of funding.

The County Board of Supervisors twice considered adopting a storm water utility, approximately ten years ago and in 2004. In 2004, a storm water utility was presented to the Board of Supervisors along with several other options to increase funding. The matter was never subjected to a vote.

Required actions: *In accordance with Section I.B.5 of Permit No. VA 0088617, the County must provide adequate finances, staff, and equipment to implement the storm water management program to the maximum extent practicable.*

Recommended actions: *The County should:*

- (1) evaluate whether sufficient resources and staff have been allocated to implement the storm water program and consider evaluating additional funding mechanism sources (e.g., storm sewer inspection fees, plan review fees) to generate funds for the MS4 program. If additional revenue is unavailable, current spending priorities should be re-evaluated and revised to give priority to those program items necessary for permit compliance and environmental health and safety. For example, the County should evaluate whether it is more effective to spend more funds on street sweeping or reallocate some funds from street sweeping to hire an additional Erosion and Sediment Control inspector.*
- (2) promote an incentive program that has a higher storm water utility tax, but allows for reductions if a landowner participates in storm water management (e.g., creates or converts impervious areas to bio-retention areas, installs low impact development practices, or allows storm water management structures to be placed on their property).*

